AMENDMENTS TO THE CLAIMS

Please amend the present application as follows:

Claims

12. (Original) A method for forming an optical system, said method comprising:

providing a substrate;

depositing on the substrate a first contoured channel preform of material capable of ion exchange with the substrate; and

diffusing ions from the first channel preform into the substrate to form a first waveguide channel at least a portion of which is at least partially buried in the substrate.

13. (Original) The method of claim 12, wherein diffusing ions from the first channel preform into the substrate comprises:

providing an ionic liquid;

immersing the substrate with the deposited first channel preform in the ionic liquid such that a first portion of the ionic liquid engages the first channel preform and a second portion of the ionic liquid engages the substrate; and

applying an electric potential across the first portion and the second portion of the ionic liquid such that ions from the first channel preform diffuse into the substrate.

14. (Original) The method of claim 12, wherein in depositing the first channel preform, the first channel preform is contoured with a varying width.

15. (Original) The method of claim 12, wherein in depositing the first channel preform, the first channel preform is contoured with a varying height.

16. (Original) The method of claim 12, wherein in depositing the first channel preform, the first channel preform is contoured with both a varying width and height; and

wherein in diffusing ions from the first channel preform into the substrate, the first waveguide channel at least partially buried in the substrate is formed as an elongate, two-dimensionally tapered waveguide channel.

17. (Currently amended) The method of claim 12 13, wherein the step of providing a substrate comprises providing a substrate comprising sodium cations, and

wherein the step of providing an ionic liquid comprises providing a melt comprising sodium nitrate.

18. (Original) The method of claim 12, further comprising:

removing a portion of the first waveguide channel to form a trench, the trench being configured to receive an optical element; and

arranging an optical element at least partially within the trench, the optical element being configured to communicate optically with the first waveguide channel.

19. (Original) The method of claim 12, further comprising:

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optically coupling an input transmission medium to the first waveguide channel, the input transmission medium being configured to propagate light to the first waveguide channel; and

optically coupling an output transmission medium to the first waveguide channel, the output transmission medium being configured to propagate light from the first waveguide channel.

20. (Original) A waveguide component formed by the process of claim 12.

21. (Original) The method of claim 12, further comprising:

depositing on the substrate a second contoured channel preform of material capable of ion exchange with the substrate; and

diffusing ions from the second channel preform into the substrate to form a second waveguide channel at least partially buried in the substrate.

22. (Original) The method of claim 21, further comprising:

forming a trench along a light propagation path between the first waveguide channel and the second waveguide channel, the trench being configured to receive an optical element; and

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arranging an optical element at least partially within the trench, the optical element being configured to communicate optically with the first waveguide channel and the second waveguide channel.